



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

UNITED STATES FISH AND WILDLIFE SERVICE

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INTERIOR TACKLES TWIN PROBLEMS OF OYSTER RESOURCE

Fresh water is a "deadly poison" to the oyster--a bit of unslaked lime can be the beginning of the end for a starfish--and the oyster drill can't stand fences, if the fences have copper trimming.

Such random bits of information, gleaned from fishery biology findings, are among the factors important to the Department of the Interior program to help the American oyster industry solve its two toughest problems--scarcity of seed oysters and an abundance of predators. Another problem in which the Department is helping is the study of unexplained mortality such as that in which 40 to 95 percent of the oysters on the New Jersey side of Delaware Bay perished in the spring of 1957.

Skin divers carrying their own air supply will be utilized in certain phases of the underwater research.

Federal responsibility for oyster research rests with the Bureau of Commercial Fisheries, United States Fish and Wildlife Service. Management of the oyster resource is the responsibility of the respective States, many of which have research programs of their own on phases of the oyster problem.

Bureau officials indicate that their chief concern is with two predators--the oyster drill which is a perennial plague in oysterbeds and the starfish, an enemy which at times, for some unknown reason, surges to devastating proportions. The oyster drill is a slow-moving snail which fastens itself to an oyster, "drills" through the shell and extracts the oyster meat. A third oyster predator, the blue crab, is a table delicacy in its own right and its value as a food usually outweighs or balances its liability as a predator.

The long-range attack on the oyster drill is being conducted at the Bureau of Commercial Fisheries laboratory at Milford, Connecticut. A more immediate remedial measure, a copper-trimmed fence, is being tested in the waters of Chincoteague Bay off the Maryland-Virginia boundary.

At Milford a search is being made for a selective poison which will kill the oyster drill but not injure oysters or other valuable sea life. (A similar quest for a selective sea lamprey poison was successful after five or six years of testing some 5,000 chemical combinations.)

Research has already proved that the oyster drill will not cross a copper strip or even a copper wire. The reason for this idiosyncrasy is not known but tests have borne out that the oyster drill will shuffle across steel, lead, zinc, aluminum and other materials but not copper. Some research must be done to see if seawater, which varies chemically from place to place, has any effect on copper to make it less repulsive to oyster drills. Up to date no such condition has been found. Thus the problem is to design the best type of fence and develop the most inexpensive method of laying it.

The fence most acceptable to date is made out of plastic mesh, about a foot high, with concrete rods along the bottom for "sinkers" and plastic floats at the top. A copper strip near the top is the barrier the drill will not cross although it does climb the fence to the copper. The reason the copper is kept above the bottom is to protect it from being covered with silt or other material. The bottom of the fence must be buried a few inches to keep the oyster drill or other sea life from tunnelling underneath it.

This year the fence will be put around a half-acre plot in Chincoteague Bay. Other tests are being made on plots which approximate five feet by 10 feet.

A third approach to the drill problem is now almost complete. It is an evaluation of the current industry practice of trapping oyster drills. A trap consists of a chicken wire bag filled with young oysters and placed in an area infested with drills. The young oysters attract the drills away from the adults. In addition the young oysters offer an attractive surface on which the female drill can lay its eggs. The traps are periodically raised and cleaned. Research to date indicates that a trap's value is for a very limited area only.

The work on starfish control will be primarily an evaluation of present control methods now in effect. The big biological question which still must be answered is why the starfish has sudden increases in populations which often are ten times normal, as now evidenced in the Long Island Sound oysterbeds.

The three current control methods are "mopping", dredging and killing by chemical contact. Divers will be used in these evaluations.

Mopping consists of dragging a cotton "mop", several feet wide, across an oysterbed. The oysters are not affected but the sharp projections on the back of the starfish cling to the fibers of the mop and the predator is brought to the surface.

Dredging is in effect an underwater vacuum cleaning process in which oysters as well as starfish are sucked into the container and brought to the surface. The oysters can be replanted or marketed, depending upon conditions.

The chemical process now used by the industry consists of getting particles of granulated unslaked lime onto the starfish. This is done either by releasing the granules into the water and letting them sift down, or placing them more directly through an underwater spout. Lime particles reach the starfish and during the slaking process set up a condition in the starfish which leads to its destruction.

The scarcity of seed oysters is a perennial problem for the oyster industry. Current interest of the Bureau of Commercial Fisheries centers on the salt water ponds on Martha's Vineyard, an island off the shore of Massachusetts. Here the reefs almost isolate the bays from the sea. These "ponds" appear to have the various attributes necessary for seed production but the adult oysters which develop from Martha's Vineyard seed are too stunted to be of much commercial value.

Should Bureau research now being conducted prove that the oysters native to these salt water ponds are of a definite dwarf variety, the channels to the sea will be closed, fresh water will be introduced and the native oyster colonies destroyed. The area will then be restocked with Long Island Sound oysters which will produce seed oysters of more commercial value.

The Bureau's current program relative to the 1957 Delaware Bay mortality consists of supplying very modest amounts of money for research which Rutgers University is doing for the State of New Jersey. This plague, which struck at the New Jersey shore but not at the Delaware side, was not predation, nor did it appear to be caused by pollution. There was no proof that it was the fungus disease which strikes at oysters in warmer waters or in warmer months. As yet the cause is unknown.

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